

R E M A R K S

I. Introduction

In response to the pending Office Action, Applicants have amended claim 10 to correct for proper antecedent basis. In addition, new claims 11 and 12 have been added. Support for new claims 11 and 12 may be found, for example, in paragraph [0021] of the specification. The Title was also amended. No new matter has been added.

Applicants respectfully submit that all pending claims as currently amended are patentable over the cited prior art.

II. The Rejection Of Claims 1-4 And 6 Under 35 U.S.C. § 102

Claims 1-4 and 6 were rejected under 35 U.S.C. § 102(e) as being anticipated by Sugie et al. (US 2007/0160903). Applicants respectfully traverse this rejection for at least the following reasons.

It is alleged that Sugie discloses all of the elements of claims 1-4 and 6 of the present disclosure and as such, these claims are anticipated by Sugie. However, it is noted that the filing date of the instant application is June 29, 2006, which precedes the effective date of Sugie as a prior art reference, which is July 25, 2006. As such, Sugie does not constitute valid prior art relative to the instant application. Applicants respectfully request that the § 102 rejection of claims 1-4 and 6 be withdrawn.

III. The Rejection Of Claims 1-10 Under 35 U.S.C. § 103

Claims 1-6 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yonemura (JP 2003-346888) in view of Ohba et al. (USP No. 5,989,750) and Haruno et al. (JP

08-236101); claim 7 as being unpatentable over Yonemura, Ohba, and Haruno and further in view of Doi et al. (USP No. 4,210,709); and claims 8 and 10 as being unpatentable over Yonemura, Ohba, and Haruno and further in view of Carlisle (USP No. 3,227,583).

With regard to the present disclosure, independent claims 1 and 10 recite, in part, a lead storage battery including: a negative electrode active material layer which includes Sb, and a separator which includes silica.

Features of the present disclosure include a lead storage battery that includes both a negative electrode active material layer which includes Sb, and a separator which includes silica. As a result of this combination, the corrosion at the tab of the negative electrode is significantly suppressed and the service life of the battery is remarkably improved in the usage mode in which charge and discharge are frequently repeated under a low SOC range.

As is shown in Table 1 of the present disclosure, unexpected and superior results are shown for batteries having the above-mentioned combination. For example, in battery B4 corresponding to one embodiment of the present disclosure, which has silica content of 35% and Sb content of 0.006%, the corrosion at the tab of the negative electrode grid is significantly suppressed (3.3%) and the service life is remarkably improved (76800 cycles).

In contrast, batteries outside the range which correspond to batteries of the cited prior art do not exhibit superior characteristics. For example, battery A4 (silica content 35%, 0% Sb – corresponds to Yonemura) corrosion rate of 80.6% and a cycle life of 25,500 cycles; and battery B1 (silica content 35%, 0% Sb – corresponds to Ohba) has a high corrosion rate (2.0%) but extremely low cycle life (22,100 cycles). Moreover, Haruno and Carlisle fail to remedy this deficiency. As such, it is clear that the proposed combination of references fails to predict or

suggest the unexpected results obtained from the claimed disclosure. Accordingly, it is clear that Yonemura, Ohba, Haruno and Carlisle do not render independent claims 1 and 10 of the present disclosure obvious.

IV. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 10 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

V. Rejection Of Claims 1-4, 6 and 10 Under Nonstatutory Double Patenting Doctrine

Claims 1-4, 6 and 10 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 8 of copending U.S. Application No. 10/587,186 in view of Haruno and Carlisle.

However, since the rejection is provisional, Applicants respectfully request that the rejection be withdrawn until such time as claims in either application have been indicated to be allowable. As claims are often amended during prosecution, it is possible that the claims determined to be allowable may be patentably distinct from one another. According to PAIR, as of today May 20, 2009, the claims of Application No. 10/587,186 have yet to be allowed.

VI. Conclusion

Having responded to all open issues set forth in the Office Action, it is respectfully submitted that all claims are in condition for allowance.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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